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Conversion of Optical Image with Periodic Illuminance Change of the Frame by Photo and Movie Camera’s Matrix 11

***Abstract***

***The article deals with the spatial image sampling by photo and movie camera’s matrix. The article shows an algorithm of calculation of discrete illuminance at the aperture of individual subpixels. The algorithm allows to visualize the image distortion arising from spatial sampling. The analysis is performed with records of optical images formed by the lens in the plane of the matrix light sensor layer. The images characterized by harmonic fluctuations of illuminance on the image surface.***

***Keywords: digital photo camera, digital movie camera, modulation transfer function, image sensor, sampling, aliasing, moire.***

***References***

1. *Grebennikov O.F.* Osnovy zapisi i vosproizvedeniya izobrazhenii (v kinematografe): uchebnoe posobie dlya vuzov kinematografii. M.: Iskusstvo, 1982. 239 p.

2. *Grebennikov O.F., Tikhomirova G.V.* Osnovy zapisi i vosproizvedeniya informatsii (v audiovizual'noi tekhnike): uchebnoe posobie. SPb.: SPbGUKiT, 2002. 712 p.

3. *Mudrenov P.A.* Metodika opredeleniya fotograficheskoi razreshayushchei sposobnosti tsifrovogo izobrazheniya / Innovatsionnye tekhnologii v kinematografe i obrazovanii: IV mezhdunarodnaya nauchno-prakticheskaya konferentsiya, Moskva, 26-29 sentyabrya 2017 g.: Materialy i doklady / pod obshchei redaktsiei O.N. Raeva. M.: VGIK, 2017. P. 86-98.

4. *Raev O.N.* Razreshayushchaya sposobnost' matrits foto- i kinoapparatov / Mir tekhniki kino. 2018. No 2(12). P. 3-8.